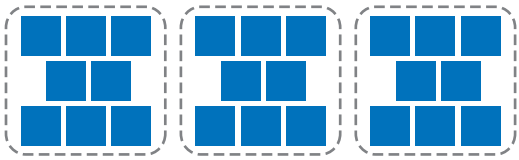
Chapter 5

Name _____

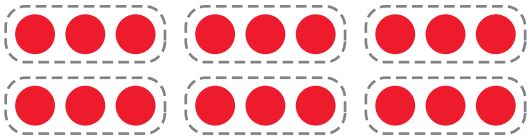
Multiply Decimals and Whole Numbers

Show What You Know

Meaning of Multiplication Complete.

1. 

_____ groups of _____ = _____

2. 

_____ groups of _____ = _____

Decimals Greater Than One Write the word form and the expanded form for each.

3. 1.7

4. 5.62

Multiply by 3-Digit Numbers Multiply.

5. $\begin{array}{r} 321 \\ \times \quad 4 \\ \hline \end{array}$

6. $\begin{array}{r} 387 \\ \times \quad 5 \\ \hline \end{array}$

7. $\begin{array}{r} 126 \\ \times \ 13 \\ \hline \end{array}$

8. $\begin{array}{r} 457 \\ \times \ 35 \\ \hline \end{array}$

MATH in the Real World

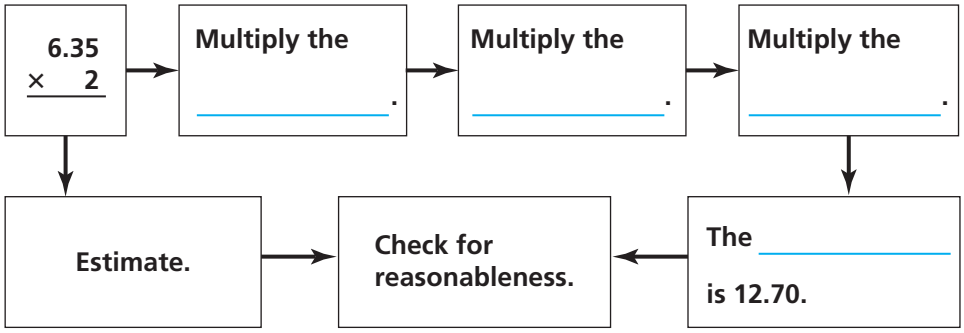
Staghorn coral is a type of branching coral. It can add as much as 0.67 foot to its branches each year. Find how much a staghorn coral can grow in 5 years.

Vocabulary Builder

Go Online For more help

Visualize It

Complete the flow map using the words with a ✓.



Connect to Vocabulary

Review Words

- decimal
- expanded form
- ✓ hundredths
- multiplication
- ✓ ones
- pattern
- place value
- ✓ product
- ✓ tenths
- thousandths

Understand Vocabulary

Read the description. What term do you think it describes?

1. It is the process used to find the total number of items in a given number of groups. _____
2. It is a way to write a number that shows the value of each digit. _____
3. It is one of one hundred equal parts. _____
4. This is the result when you multiply two numbers. _____
5. It is the value of a digit in a number based on the location of the digit. _____

Name _____

Understand Decimal Multiplication Patterns

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use patterns to help place the decimal point in a product.

UNLOCK the Problem

Cindy is combining equal-sized rectangles from different fabric patterns to make a postage-stamp quilt. Each rectangle has an area of 0.75 of a square inch. If she uses 1,000 rectangles to make the quilt, what will be the area of the quilt?

Use the pattern to find the product.

$1 \times 0.75 = 0.75$

$10 \times 0.75 = 7.5$

$100 \times 0.75 = 75.$

$1{,}000 \times 0.75 = 750.$

The quilt will have an area of _____ square inches.

1. When you multiply by 10, 100, and 1,000, how does the position of the decimal point change in the product? _____

_____

Place value patterns can be used to find the product of a number and the decimals 0.1 and 0.01.

Example 1

Jorge is making a scale model of the Willis Tower in Chicago, Illinois for a theater set. The height of the tower is 1,353 feet. If the model is $\frac{1}{100}$ of the actual size of the building, how tall is the model?

- What fraction of the actual size of the building is the model?

_____

- Write the fraction as a decimal.

_____

$1 \times 1{,}353 = 1{,}353$

$0.1 \times 1{,}353 = 135.3$

$0.01 \times 1{,}353 =$ ____ ← $\frac{1}{100}$ of 1,353

Jorge's model of the Willis Tower is _____ feet tall.

2. When you multiply by 0.1, how does the position of the decimal point change in the product?

_____

Example 2

Three friends are selling items at an arts and crafts fair. Josey makes $45.75 selling jewelry. Mark makes 100 times as much as Josey makes by selling his custom furniture. Carlos makes one tenth of the money Mark makes by selling paintings. How much money does each friend make?

Josey: $45.75

Mark: _____ × $45.75

Think: 1 × $45.75 = _____

10 × $45.75 = _____

100 × $45.75 = _____

Carlos: _____ × _____

Think: 1 × _____ = _____

_____ × _____ = _____

So, Josey makes $45.75, Mark makes _____,

and Carlos makes _____.

Try This! Complete the pattern.

A

1 × 4.78 = _____

10 × 4.78 = _____

100 × 4.78 = _____

1,000 × 4.78 = _____

B

38 × 1 = _____

38 × 0.1 = _____

38 × 0.01 = _____

Share and Show

Math Board

Complete the pattern.

1. 1 × 17.04 = 17.04

10 × 17.04 = 170.4

100 × 17.04 = 1,704

1,000 × 17.04 = _____

Think: The decimal point moves the same number of places to the _____ in the product as the number of zeros in 10, 100, and 1,000.

Name _____

Complete the pattern.

2. $1 \times 3.19 =$ _____

$10 \times 3.19 =$ _____

$100 \times 3.19 =$ _____

$1{,}000 \times 3.19 =$ _____

3. $45.6 \times 1 =$ _____

$45.6 \times 10 =$ _____

$45.6 \times 100 =$ _____

$45.6 \times 1{,}000 =$ _____

4. $1 \times 6{,}391 =$ _____

$0.1 \times 6{,}391 =$ _____

$0.01 \times 6{,}391 =$ _____

Math Talk

MTR 5.1 Use patterns and structure.

Explain how you know that when you multiply the product 10×34.1 by 0.1, the result will be 34.1.

On Your Own

MTR **Find the value of *n*.**

5. $n \times \$3.25 = \$325.00$

$n =$ _____

6. $0.1 \times n = 89.5$

$n =$ _____

7. $1{,}000 \times n = 630$

$n =$ _____

8. A glacier in Alaska moves about 29.9 meters a day. About how much farther will it move in 1,000 days than it will move in 100 days?

_____

9. For 9a–9e, choose Yes or No to indicate whether the product is correct.

9a. $0.81 \times 10 = 0.081$ ○ Yes ○ No

9b. $0.33 \times 100 = 33$ ○ Yes ○ No

9c. $0.05 \times 100 = 5$ ○ Yes ○ No

9d. $0.70 \times 1{,}000 = 70$ ○ Yes ○ No

9e. $0.38 \times 10 = 0.038$ ○ Yes ○ No

Problem Solving · Applications

What's the Error?

10. Kirsten is making lanyards for a convention. She needs to make 1,000 lanyards and knows that 1 lanyard uses 1.75 feet of cord. How much cord will Kirsten need?

MATH on the Spot

Kirsten's work is shown below.

$1 \times 1.75 = 1.75$

$10 \times 1.75 = 10.75$

$100 \times 1.75 = 100.75$

$1{,}000 \times 1.75 = 1{,}000.75$

Find and describe Kirsten's error.

Solve the problem using the correct pattern.

So, Kirsten needs _____ feet of cord to make 1,000 lanyards.

- MTR Describe how Kirsten could solve the problem without writing out the pattern.

Name _____

Understand Decimal Multiplication Patterns

Go Online
Interactive Examples

Complete the pattern.

1. $2.07 \times 1 =$ 2.07
$2.07 \times 10 =$ 20.7
$2.07 \times 100 =$ 207
$2.07 \times 1{,}000 =$ 2,070

2. $1 \times 30 =$ _____
$0.1 \times 30 =$ _____
$0.01 \times 30 =$ _____

3. $1 \times 0.23 =$ _____
$10 \times 0.23 =$ _____
$100 \times 0.23 =$ _____
$1{,}000 \times 0.23 =$ _____

4. $390 \times 1 =$ _____
$390 \times 0.1 =$ _____
$390 \times 0.01 =$ _____

5. $1 \times 5 =$ _____
$0.1 \times 5 =$ _____
$0.01 \times 5 =$ _____

6. $1 \times 9{,}670 =$ _____
$0.1 \times 9{,}670 =$ _____
$0.01 \times 9{,}670 =$ _____

7. $874 \times 1 =$ _____
$874 \times 10 =$ _____
$874 \times 100 =$ _____
$874 \times 1{,}000 =$ _____

8. $1 \times 10 =$ _____
$10 \times 10 =$ _____
$100 \times 10 =$ _____
$1{,}000 \times 10 =$ _____

9. $1 \times 49.32 =$ _____
$10 \times 49.32 =$ _____
$100 \times 49.32 =$ _____
$1{,}000 \times 49.32 =$ _____

Problem Solving Real World

10. Aylan plants equal-sized squares of sod in a yard. Each square has an area of 6 square feet. Aylan plants a total of 1,000 squares in a yard. What is the total area of the squares of sod?

_____

11. Three friends are selling items at a bake sale. Ms. May makes $23.25 selling bread. Ms. Inez sells gift baskets and makes 100 times as much as Ms. May. Ms. Jo sells pies and makes one tenth of the money Ms. Inez makes. How much money does each friend make?

_____

12. WRITE Math Explain how to use a pattern to find the product of a decimal.

_____

_____

Lesson Check

13. The length of the British steamship Titanic was 882 feet. Porter's history class is building a model of the Titanic. The model is $\frac{1}{100}$ of the actual length of the ship. How long is the model?

14. Kahil is asked to find 100×18.72. How many places and in which direction should he move the decimal point to get the correct product?

Spiral Review

15. The table shows the height in meters of some of the world's tallest buildings. What are the heights in order from least to greatest?

Building	Height (meters)
Zifeng Tower	457.2
International Finance Center	415.138
Burj Khalifa	828.142
Petronas Towers	452.018

16. Vivian had $187.56 in her checking account. She deposited $49.73 and then used her debit card to spend $18.64. What is Vivian's new account balance?

17. What is 3.47 rounded to the nearest tenth?

18. The city gardener ordered 1,680 tulip bulbs for Riverside Park. The bulbs were shipped in 35 boxes with an equal number of bulbs in each box. How many tulip bulbs were in each box?

Name _____

Represent Multiplication with Decimals and Whole Numbers

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use a model to multiply a whole number and a decimal.

Investigate

Materials ■ decimal models ■ color pencils

Giant tortoises move very slowly. They can travel a distance of about 0.17 mile in 1 hour. How far could a giant tortoise move if it travels at this same speed for 4 hours?

A. Complete the statement to describe the problem.

I need to find how many total miles are in _____ groups

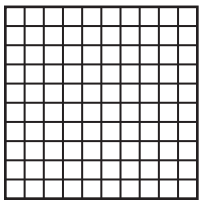
of _____.

- Write an expression to represent the problem. _____

B. Use the decimal model to find the answer.

- What does each small square in the decimal model represent?

_____



C. Shade a group of _____ squares to represent the distance a giant tortoise can move in 1 hour.

D. Use a different color to shade each additional group of _____ squares until you have _____ groups of _____ squares.

E. Record the total number of squares shaded. _____ squares

So, the giant tortoise can move _____ mile in 4 hours.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Describe how the model helps you determine if your answer is reasonable.

Draw Conclusions

1. Explain why you used only one decimal model to show the product.

2. Explain how the product of 4 groups of 0.17 is similar to the product of 4 groups of 17. How is it different?

3. MTR Compare the product of 0.17 and 4 with each of the factors. Which number has the greatest value? Explain how this is different than multiplying two whole numbers.

Make Connections

You can draw a quick picture to solve decimal multiplication problems.

Find the product. 3×0.46

STEP 1 Draw 3 groups of 4 tenths 6 hundredths. Remember that a square is equal to 1.

STEP 2 Combine the hundredths and rename.

There are _____ hundredths. I will rename

_____ hundredths as _____.

Cross out the hundredths you renamed.

STEP 3 Combine the tenths and rename.

There are _____ tenths. I will rename

_____ tenths as _____.

Cross out the tenths you renamed.

STEP 4 Record the value shown by your completed quick picture.

So, $3 \times 0.46 =$ _____.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how renaming decimals is like renaming whole numbers.

Name _____

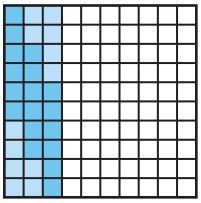
Share and Show Math Board

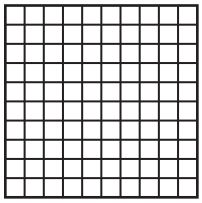
Use the decimal model to find the product.

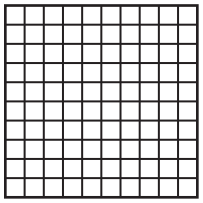
1. $5 \times 0.06 =$ _____

2. $2 \times 0.38 =$ _____

3. $4 \times 0.24 =$ _____







Find the product. Draw a quick picture.

4. $3 \times 0.62 =$ _____

5. $4 \times 0.32 =$ _____

6. WRITE Math Describe how you solved Problem 5 using place value and renaming. _____

7. Inas has 0.73 liter of juice in her pitcher. Sanji's pitcher has 2 times as much juice as Inas's pitcher. Lee's pitcher has 4 times as much juice as Inas's pitcher. Sanji and Lee pour all their juice into a large bowl. How much juice is in the bowl?

On Your Own

Use the table for 8–10.

Water Consumption

Animal	Average Amount (liters per day)
Canada Goose	0.24
Cat	0.15
Mink	0.10
Opossum	0.30
Bald Eagle	0.16

8. MTR Each day a bobcat drinks about 3 times as much water as a Canada goose drinks. How much water can a bobcat drink in one day?

_____

9. River otters drink about 5 times as much water as a bald eagle drinks in a day. How much water can a river otter drink in 3 days?

MATH on the Spot

_____

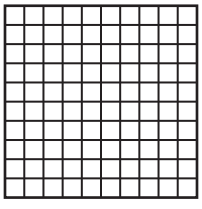
10. An animal shelter provides a bowl with 1.25 liters of water for 3 cats. About how much water will be left after the cats drink their average daily amount of water?

_____

11. Yossi is shading the model to show 3×0.14.

Describe what Yossi should shade to show the product. Then shade in the correct amount of boxes that will show the product of 3×0.14.

_____ groups of _____ small squares or _____ small squares



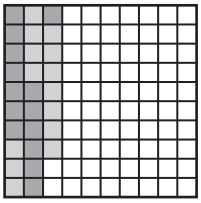
Name _____

Represent Multiplication with Decimals and Whole Numbers

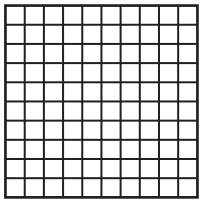
Go Online
Interactive Examples

Use the decimal model to find the product.

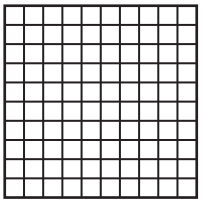
1. $4 \times 0.07 =$ 0.28



2. $3 \times 0.27 =$ _____



3. $2 \times 0.45 =$ _____



Find the product. Draw a quick picture.

4. $2 \times 0.8 =$ _____

5. $2 \times 0.67 =$ _____

6. $5 \times 0.71 =$ _____

7. $4 \times 0.23 =$ _____

Problem Solving Real World

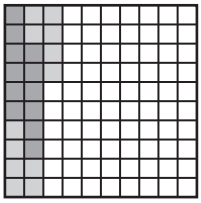
8. In physical education class, Sonia walks a distance of 0.12 mile in 1 minute. At that rate, how far can she walk in 9 minutes?

9. A certain tree can grow 0.45 meter in one year. At that rate, how much can the tree grow in 3 years?

10. WRITE Math Explain how multiplying a whole number and a decimal is similar to and different from multiplying whole numbers.

Lesson Check

11. What multiplication equation does the model represent?



12. A certain type of lunch meat contains 0.5 gram of unsaturated fat per serving. How much unsaturated fat is in 3 servings of the lunch meat?

Spiral Review

13. To find the value of the following expression, what operation should you do first?

$$20 - (7 + 4) \times 5$$

14. Ella and three friends run in a relay race that is 14 miles long. Each person runs equal parts of the race. How many miles does each person run?

15. What symbol makes the statement true? Write $>$, $<$, or $=$.

$$17.518 \bigcirc 17.581$$

16. Each number in the following sequence has the same relationship to the number immediately before it. How can you find the next number in the sequence?

3, 30, 300, 3,000, . . .

Name _____

Multiplication with Decimals and Whole Numbers

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4
- **Measurement** 5.M.2.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

I Can use properties and place value to multiply a decimal and a whole number.

UNLOCK the Problem Real World

In 2010, the United States Mint released a newly designed Lincoln penny. A Lincoln penny has a mass of 2.5 grams. If there are 5 Lincoln pennies on a tray, what is the total mass of the pennies?

- How much mass does one penny have?

- How many pennies are on the tray?

- Use grouping language to describe what you are asked to find.

Multiply. 5 × 2.5

Estimate the product. Round to the nearest whole number.

$5 \times$ _____ = _____

One Way

Use the Distributive Property.

$5 \times 2.5 = 5 \times (\_\_\_\_ + 0.5)$

$= (\_\_\_\_ \times 2) + (5 \times \_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$

Another Way Show partial products.

STEP 1 Multiply the tenths by 5.

$$\begin{array}{r} 2.5 \\ \times\ \ 5 \\ \hline \end{array}$$

← 5 × 5 tenths = 25 tenths, or 2 ones and 5 tenths

STEP 2 Multiply the ones by 5.

$$\begin{array}{r} 2.5 \\ \times\ \ 5 \\ \hline 2.5 \\ \hline \end{array}$$

← 5 × 2 ones = 10 ones, or 1 ten

STEP 3 Add the partial products.

$$\begin{array}{r} 2.5 \\ \times\ \ 5 \\ \hline 2.5 \\ +\ 10 \\ \hline \end{array}$$

Math Talk MTR 4.1 Engage in discussions on mathematical thinking.

How does the estimate help you determine if the answer is reasonable?

So, 5 Lincoln pennies have a mass of _____ grams.

Example Use place value patterns.

Having a thickness of 1.35 millimeters, the dime is the thinnest coin produced by the United States Mint. If you stacked 8 dimes, what would be the total thickness of the stack?

Multiply. 8 × 1.35

STEP 1

Write the decimal factor as a whole number.

Think: 1.35 × 100 = 135

STEP 2

Multiply as with whole numbers.

STEP 3

Place the decimal point.

Think: 0.01 of 135 is 1.35. Find 0.01 of 1,080 and record the product.

$$\begin{array}{r} 1.35 \\ \times \quad 8 \\ \hline ? \end{array} \xrightarrow{\times 100} \xrightarrow{\times 100} \begin{array}{r} 135 \\ \times \quad 8 \\ \hline 1{,}080 \end{array} \xrightarrow{\times 0.01} \xrightarrow{\times 0.01} \begin{array}{r} 1.35 \\ \times \quad 8 \\ \hline \quad\quad \end{array}$$

A stack of 8 dimes would have a thickness of _____ millimeters.

1. MTR Explain how you know the product 8 × 1.35 is greater than 8.

_____

_____

2. What if you multiplied 0.35 by 8? Would the product be less than or greater than 8? Explain.

_____

_____

Share and Show Math Board

Place the decimal point in the product.

1. $\begin{array}{r} 6.81 \\ \times \quad 7 \\ \hline 4767 \end{array}$

Think: The place value of the decimal factor is hundredths.

2. $\begin{array}{r} 3.7 \\ \times \quad 2 \\ \hline 74 \end{array}$

3. $\begin{array}{r} 19.34 \\ \times \quad 5 \\ \hline 9670 \end{array}$

Name _____

Find the product.

4. $\begin{array}{r} 6.32 \\ \times \quad 3 \\ \hline \end{array}$

5. $\begin{array}{r} 4.5 \\ \times \quad 8 \\ \hline \end{array}$

6. $\begin{array}{r} 40.7 \\ \times \quad 5 \\ \hline \end{array}$

Math Talk

MTR 6.1 Assess the reasonableness of solutions.

How can you determine if your answer to Problem 6 is reasonable?

On Your Own

Find the product.

7. $\begin{array}{r} 4.93 \\ \times \quad 7 \\ \hline \end{array}$

8. $\begin{array}{r} 8.2 \\ \times \quad 6 \\ \hline \end{array}$

9. $\begin{array}{r} 7.55 \\ \times \quad 8 \\ \hline \end{array}$

Copy. Then find the product.

10. 8×7.2

11. 3×1.45

12. 9×8.6

13. 6×0.79

14. 4×9.3

15. 7×0.81

16. 6×2.08

17. 5×23.66

18. The cost to park a car in a parking lot is $3.45 per hour. Maleek parked his car for 4 hours on Monday, 3 hours on Tuesday, and 2 hours on Wednesday. How much did he spend on parking in all?

_____

Problem Solving · Applications

Use the table for 19–20.

Coin	Mass (in grams)
Nickel	5.00
Dime	2.27
Quarter	5.67
Half Dollar	11.34
Dollar	8.1

19. Sari has a bag containing 6 half-dollar and 3 dollar coins. What is the total mass of the coins in Sari's bag?

_____

20. Chance has $2 in quarters. Blake has $5 in dollar coins. Whose coins have the greatest mass? Explain.

MATH on the Spot

_____

_____

_____

_____

21. MTR Julie multiplies 6.27 by 7 and claims the product is 438.9. Explain without multiplying how you know Julie's answer is not correct. Find the correct answer.

_____

_____

_____

_____

_____

22. Mee and Abby are trying to solve a science homework question. They need to find how much a rock that weighs 6 pounds on Earth would weigh on the moon. They know they can multiply weight on Earth by about 0.16 to find weight on the moon. Select the partial products Mee and Abby would need to add to find the product of 6 and 0.16. Mark all that apply.

(A) 0.22 (B) 0.6 (C) 3.65 (D) 3.6 (E) 0.36

Show the Math

Demonstrate Your Thinking

Name _____

Multiplication with Decimals and Whole Numbers

Go Online
Interactive Examples

Find the product.

1. $\begin{array}{r} 5.2 \\ \times \quad 4 \\ \hline 20.8 \end{array}$

Think: The place value of the decimal factor is tenths.

2. $\begin{array}{r} 9.8 \\ \times \quad 6 \\ \hline \end{array}$

3. $\begin{array}{r} 13.02 \\ \times \quad 5 \\ \hline \end{array}$

4. $\begin{array}{r} 8.42 \\ \times \quad 9 \\ \hline \end{array}$

5. $\begin{array}{r} 14.05 \\ \times \quad 7 \\ \hline \end{array}$

6. $\begin{array}{r} 23.82 \\ \times \quad 5 \\ \hline \end{array}$

7. 4×9.3

8. 3×7.9

9. 5×42.89

10. 8×2.6

11. 6×0.92

12. 9×1.04

13. 7×2.18

14. 3×19.54

Problem Solving Real World

15. A half-dollar coin issued by the United States Mint measures 30.61 millimeters across. Mikk has 9 half-dollar coins. He lines them up edge to edge in a row. What is the total length of the row of half-dollar coins?

_____

16. One pound of grapes costs $3.49. Linda buys exactly 3 pounds of grapes. How much will the grapes cost?

_____

17. WRITE Math Compare and contrast the methods you can use to multiply a whole number and a decimal.

_____

_____

Lesson Check

18. Pete wants to make turkey sandwiches for two friends and himself. He wants each sandwich to contain 3.5 ounces of turkey. How many ounces of turkey does he need?

19. Gasoline costs $3.37 per gallon. Mila's father puts 9 gallons of gasoline in the tank of his car. How much will the gasoline cost?

Spiral Review

20. A group of 5 boys and 8 girls goes to the fair. Admission costs $9 per person. What expression can show the total amount the group will pay?

21. Akira and 4 friends buy a box of 362 baseball cards at a yard sale. If they share the cards equally, how many cards will each person receive?

22. Jaina rides her bicycle 2.7 miles to school. She takes a different route home, which is 2.5 miles. How many miles does Sarah ride to and from school each day?

23. Domingo has a box of 15 markers. He gives 3 markers each to 4 friends. What expression can show the number of markers Domingo has left?

Name _____

Multiply Using Expanded Form

I Can use expanded form and place value to multiply a decimal and a whole number.

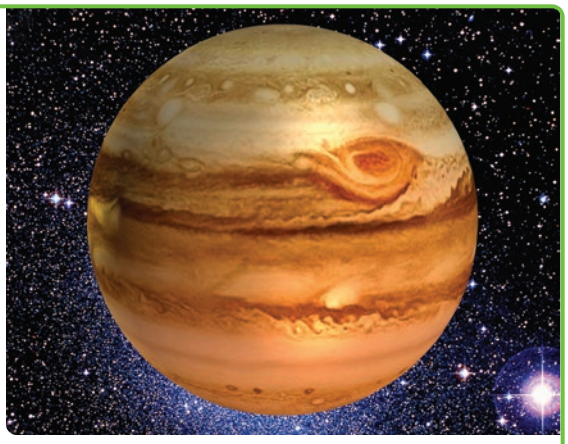
Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

UNLOCK the Problem Real World

The length of a day is the amount of time it takes a planet to make a complete rotation on its axis. On Jupiter, there are 9.8 Earth hours in a day. How many Earth hours are there in 46 days on Jupiter?

You can use a model and partial products to solve the problem.



▲ A day on Jupiter is called a Jovian day.

One Way Use a model.

Multiply. 46×9.8

THINK

STEP 1

Rewrite the factors in expanded form, and label the model.

46 = _____ + _____

9.8 = _____ + _____

STEP 2

Multiply to find the area of each section. The area of each section represents a partial product.

STEP 3

Add the partial products.

MODEL

	9	0.8	
40			
6			

RECORD

$$\begin{array}{r} 9.8 \\ \times\ 46 \\ \hline \end{array}$$

← 40 × 9

← 40 × 0.8

← 6 × 9

+ ← 6 × 0.8

So, there are _____ Earth hours in 46 days on Jupiter.

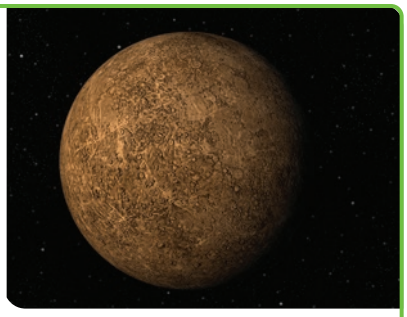
1. What if you wanted to find the number of Earth hours in 125 days on Jupiter? How would your model change?

_____

_____

Another Way Use place value patterns.

A day on the planet Mercury lasts about 58.6 Earth days. How many Earth days are there in 14 days on Mercury?



▲ It takes Mercury 88 Earth days to complete an orbit of the Sun.

Multiply. 14×58.6

STEP 1

Write the decimal factor as a whole number.

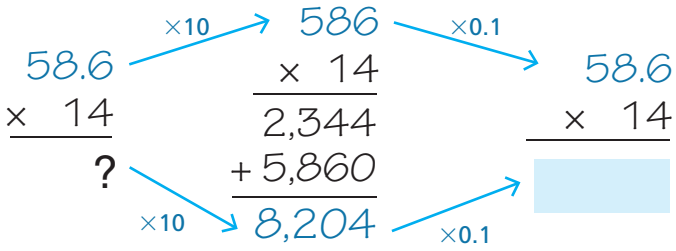
STEP 2

Multiply as with whole numbers.

STEP 3

Place the decimal point.

The decimal product is _____ of the whole-number product.



So, there are _____ Earth days in 14 days on Mercury.

2. MTR What if you rewrite the problem as $(10 + 4) \times 58.6$ and used the Distributive Property to solve? Explain how this is similar to your model using place value.

_____

_____

Try This! Find the product.

A **Use a model.**

$52 \times 0.35 =$ _____

B **Use place value patterns.**

$16 \times 9.18 =$ _____

Name _____

Share and Show

Math Board

Draw a model to find the product.

1. $19 \times 0.75 =$ _____

2. $27 \times 8.3 =$ _____

	0.7	0.05
10		
9		

Find the product.

3. $18 \times 8.7 =$ _____

4. $23 \times 56.1 =$ _____

5. $47 \times 5.92 =$ _____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Describe how you could use an estimate to determine if your answer to Problem 3 is reasonable.

On Your Own

Find the product.

6. $71 \times 8.3 =$ _____

7. $28 \times 0.19 =$ _____

8. A jacket costs $40 at the store. Arlo pays only 0.7 of the price because his father works at the store. Evan has a coupon for $10 off. Explain who will pay less for the jacket.

MATH on the Spot

_____

9. An orchard sells apples in 3.5-pound bags. The orchard sells 45 bags of apples each day. How many pounds of apples does the orchard sell in 1 week?

_____

Problem Solving · Applications

10. MTR While researching facts on the planet Earth, Claudine learned that a true Earth day is about 23.93 hours long. How many hours are in 2 weeks on Earth?

a. What are you being asked to find?

_____

_____

b. What information do you need to know to solve the problem? _____

_____

_____

c. Write an expression to represent the problem to be solved. _____

d. Show the steps you used to solve the problem.

e. Complete the sentences.

On Earth, there are about _____

hours in a day, _____ days in 1 week,

and _____ days in 2 weeks.

Since _____ × _____ =

_____, there are about

_____ hours in 2 weeks on Earth.

11. Use the numbers in the boxes to complete the equations. A number may be used more than once.

7.68	76.8	768

$48 \times 16 =$ _____

$48 \times 1.6 =$ _____ $4.8 \times 16 =$ _____

$0.48 \times 16 =$ _____ $48 \times 0.16 =$ _____

Name _____

Multiply Using Expanded Form

Go Online
Interactive Examples

Draw a model to find the product.

1. $37 \times 9.5 =$ 351.5

	9	0.5
30	270	15
7	63	3.5

2. $84 \times 0.24 =$ _____

Find the product.

3. $13 \times 0.53 =$ _____

4. $27 \times 89.5 =$ _____

5. $32 \times 12.71 =$ _____

6. $17 \times 0.52 =$ _____

7. $23 \times 59.8 =$ _____

8. $61 \times 15.98 =$ _____

Problem Solving Real World

9. An object that weighs one pound on the moon will weigh about 6.02 pounds on Earth. Suppose a moon rock weighs 11 pounds on the moon. How much will the same rock weigh on Earth?

10. Tessa is on the track team. For practice and exercise, she runs 2.25 miles each day. At the end of 14 days, how many total miles will Tessa have run?

11. WRITE Math Compare the method of using expanded form and the method of using place value to multiply a decimal and a whole number.

Lesson Check

12. A baker is going to make 24 blueberry pies. She wants to make sure each pie contains 3.5 cups of blueberries. How many cups of blueberries will she need?

13. Leng buys postcards while he is on vacation. It costs $0.36 to send one postcard. Leng wants to send 12 postcards. How much will it cost Leng to send all the postcards?

Spiral Review

14. What is the value of the digit 4 in the number 524,897,123?

15. How many zeros will be in the product $(6 \times 5) \times 100$?

16. Roast beef costs $8.49 per pound. What is the cost of 2 pounds of roast beef?

17. North Ridge Middle School collected 5,022 cans of food for a food drive. Each of the 18 homerooms collected the same number of cans. About how many cans did each homeroom collect?

Name _____

Multiply Money

I Can draw a diagram to help solve a decimal multiplication problem.

Florida's B.E.S.T.

- **Number Sense & Operations** 5.NSO.2.4
- **Measurement** 5.M.2.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

UNLOCK the Problem Real World

A group of friends go to a local fair. Jayson spends $3.75. Myra spends 3 times as much as Jayson. Teresa spends $5.25 more than Myra. How much does Teresa spend?

Use the graphic organizer below to help you solve the problem.

Read the Problem

What do I need to find?

I need to find _____

_____

_____.

What information do I need to use?

I need to use the amount spent by _____

to find the amount spent by _____ and

_____ at the fair.

How will I use the information?

I can draw a diagram to show _____

_____

_____.

Solve the Problem

The amount of money Myra and Teresa spend depends on the amount Jayson spends. Draw a diagram to compare the amounts without calculating. Then, use the diagram to find the amount each person spends.

Jayson | $3.75 |

Myra | | | |

Teresa | | | | $5.25 |

Jayson: $3.75

Myra: 3 × _____ = _____

Teresa: _____ + $5.25 = _____

So, Teresa spent _____ at the fair.

Try Another Problem

Olena's savings account has a balance of $57.85 in January. By March, her balance is 4 times as much as her January balance. Between March and November, Olena deposits a total of $78.45. If she does not withdraw any money from her account, what should Olena's balance be in November?

Read the Problem	Solve the Problem
What do I need to find?	So, Olena's savings account balance will be _____ in November.
What information do I need to use?	
How will I use the information?	

- MTR How does the diagram help you determine if your answer is reasonable?

_____

_____

Math Talk

MTR 2.1 Demonstrate understanding in multiple ways.

Describe a different diagram you could use to solve the problem.

Name _____

Share and Show

Math Board

1. Manuel collects $45.18 for a fundraiser. Gerome collects $18.07 more than Manuel. Camilla collects 2 times as much as Gerome. How much money does Camilla collect for the fundraiser?

First, draw a diagram to show the amount Manuel collects.

Then, draw a diagram to show the amount Gerome collects.

Next, draw a diagram to show the amount Camilla collects.

Finally, find the amount each person collects.

Camilla collects _____ for the fundraiser.

2. What if Gerome collects $9.23 more than Manuel? If Camilla still collects 2 times as much as Gerome, how much money would Camilla collect?

_____

3. Jenn buys a pair of jeans for $24.99. Her friend Dola spends $3.50 more for the same pair of jeans. Vicki paid the same price as Dola for the jeans but bought 2 pairs. How much did Vicki spend?

_____

4. The fifth-grade students in Miguel's school formed 3 teams to raise money for the Penny Harvest fundraiser. Team A raised $65.45. Team B raised 3 times as much as Team A. Team C raised $20.15 more than Team B. How much money did Team C raise?

_____

Show the Math

Demonstrate Your Thinking

On Your Own

Use the sign for 5–7.

5. Luis receives a coupon in the mail for $10 off of a purchase of $100 or more. If he buys 3 pairs of board shorts, 2 towels, and a pair of sunglasses, will he spend enough to use the coupon? How much will his purchase cost?

_____

6. MTR Ana spends $33.90 on 3 different items. If she did not buy board shorts, which three items did Ana buy?

_____

7. Austin shops at Surfer Joe's Surf Shop before going to the beach. He buys 2 T-shirts, a pair of board shorts, and a towel. If he gives the cashier $60, how much change will Austin get back?

_____

8. It costs $5.15 to rent a kayak for 1 hour at a local state park. The price per hour stays the same for up to 5 hours of rental. After 5 hours, the cost decreases to $3.75 per hour. How much would it cost to rent a kayak for 6 hours?

MATH on the Spot

_____

9. At a video game store it costs $10.45 to buy one movie. It costs 3 times as much to buy one video game. Choose the answer to complete the sentence.

It would cost Jon | $20.90 / $31.35 / $41.80 | to buy one movie and one video game.

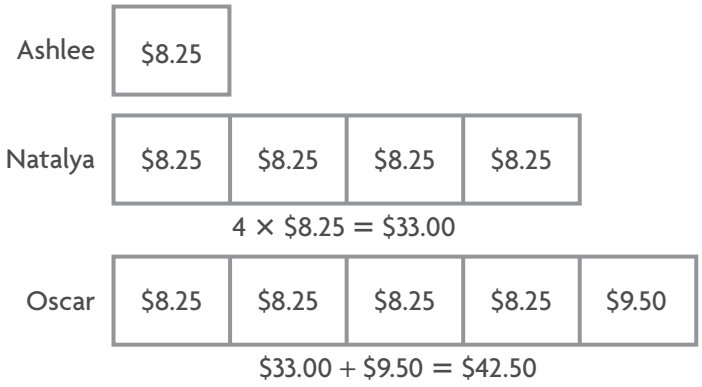
Name _____

Multiply Money

Go Online
Interactive Examples

Solve each problem.

1. Three friends go to a local farmers' market. Ashlee spends $8.25. Natalya spends 4 times as much as Ashlee. Oscar spends $9.50 more than Natalya. How much does Oscar spend?



$42.50

2. Kimmy's savings account has a balance of $76.23 in June. By September, her balance is 5 times as much as her June balance. Between September and December, Kimmy deposits a total of $87.83 into her account. If she does not withdraw any money from her account, what should Kimmy's balance be in December?

_____

3. Amy raises $58.75 to participate in a walk-a-thon. Jeremy raises $23.25 more than Amy. Hector raises 3 times as much as Jeremy. How much money does Hector raise?

_____

4. WRITE Math Write a word problem that uses multiplication of money. Draw a bar model to help you write equations to solve the problem.

_____

_____

_____

Lesson Check

5. A family of two adults and four children is going to an amusement park. Admission is $21.75 for adults and $15.25 for children. What is the total cost of the family's admission?

6. Ms. Rosenbaum buys 5 crates of apples at the market. Each crate costs $12.50. She also buys one crate of pears for $18.75. What is the total cost of the apples and pears?

Spiral Review

7. Write the decimal.
three hundred forty-two and seven hundred fifteen thousandths

8. What number represents 125.638 rounded to the nearest hundredth?

9. The sixth-graders at Meadowbrook Middle School are going on a field trip. The 325 students and adults will ride in school buses. Each bus holds 48 people. How many school buses are needed?

10. A restaurant can seat 100 people. It has booths that seat 4 people and tables that seat 6 people. So far, 5 of the booths are full. What expression matches the situation?

Name _____

Chapter 5

Chapter Review

1. Omar is making a scale model of the Statue of Liberty for a report on New York City. The Statue of Liberty is 305 feet tall measuring from the ground to the tip of the torch. If the model is $\frac{1}{100}$ the actual size of the Statue of Liberty, how tall is the model?

_____ feet

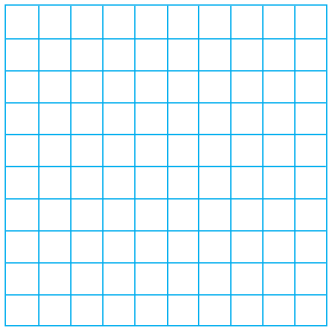
2. For numbers 2a–2d, choose Yes or No to indicate whether the product is correct.

2a.	$0.62 \times 10 = 62$	○ Yes	○ No
2b.	$0.53 \times 10 = 5.3$	○ Yes	○ No
2c.	$0.09 \times 100 = 9$	○ Yes	○ No
2d.	$0.60 \times 1{,}000 = 60$	○ Yes	○ No

3. Nicole is making 1,000 bows for people who donate to the library book sale. She needs a piece of ribbon that is 0.75 meter long for each bow. How many meters of ribbon does Nicole need to make the bows? Explain how to find the answer.

4. Fatima is shading this model to show 0.08×3. Shade the correct amount of boxes that will show the product.

Fatima should shade ☐ groups of ☐ small squares or ☐ small squares.



5. Tenley is making a square frame for her painting. She is using 4 pieces of wood that are each 2.75 feet long. How much wood will Tenley use to make the frame?

_____ feet

6. Which problems will have two decimal places in the product? Mark all that apply.

(A) 5×0.89 (C) 5.31×1 (E) 7×4.6

(B) 7.4×10 (D) 6.1×3

7. Ken and Leah are trying to solve a science homework question. They need to find out how much a rock that weighs 4 pounds on Earth would weigh on Venus. They know they can multiply the number of pounds the rock weighs on Earth by 0.91 to find its weight on Venus. Select the partial products Ken and Leah would need to add to find the product of 4 and 0.91. Mark all that apply.

(A) 0.95 (B) 0.04 (C) 3.65 (D) 3.6 (E) 0.36

8. Sophia exchanged 1,000 U.S. dollars for the South African currency, which is called the rand. The exchange rate was 7.15 rand to $1.

Part A

How many South African rand did Sophia get? Explain how you know.

Part B

Sophia spent 6,274 rand on her trip. She exchanged the rand she had left for U.S. dollars. The exchange rate was 1 rand to $0.14. How many U.S. dollars did Sophia get? Support your answer using specific information from the problem.

Name _____

9. Trevor is reading a book for a book report. Last week, he read 35 pages of the book. This week, he read 2.5 times as many pages as he read last week. How many pages of the book has Trevor read this week? Show your work.

10. Jonah drives his car to and from work. The total length of the trip to and from work is 19.2 miles. In August, Jonah worked 21 days. How many miles in all did Jonah drive to and from work that month? Show your work.

11. Use the numbers in the boxes to complete the number sentences. A number may be used more than once.

8.99	89.9	899

$29 \times 31 =$ ☐

$29 \times 3.1 =$ ☐

$0.29 \times 31 =$ ☐

$2.9 \times 31 =$ ☐

12. Melinda, Zachary, and Heather went to the mall to shop for school supplies. Melinda spent $14.25 on her supplies. Zachary spent $2.30 more than Melinda spent. Heather spent 2 times as much money as Zachary spent. How much did Heather spend on school supplies?

$_____

13. The cost of admission to the Baytown Zoo is $10.50 for each senior citizen, $15.75 for each adult, and $8.25 for each child.

Part A

A family of 2 adults and 1 child plan to spend the day at the Baytown Zoo. How much does admission for the family cost? Explain how you found your answer.

Part B

Describe another way you could solve the problem.

Part C

What if 2 more tickets for admission are purchased? If the two additional tickets cost $16.50, determine what type of tickets the family purchases. Explain how you can determine the answer without calculating.

14. At a tailor shop, it costs $6.79 to shorten a pair of pants and 4 times as much to mend a dress. Choose the answer that correctly completes the statement.

It would cost Lisa

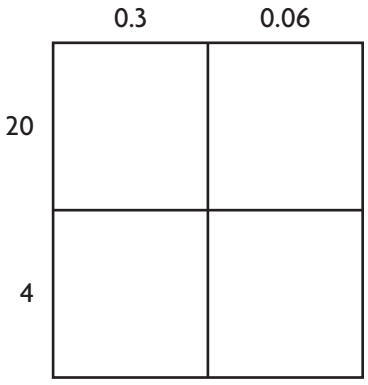
$19.47
$27.16
$33.95

to shorten one pair of pants and mend one dress.

Name _____

15. Complete the area model. Find the product.

$24 \times 0.36 =$ ☐



16. Mr. Evans is paid $9.20 per hour for the first 40 hours he works in a week. He is paid 1.5 times that rate for each hour after that.

Last week, Mr. Evans worked 42.25 hours. He says he earned $388.70 last week. Do you agree? Support your answer.

17. A backpack costs $25. Jasper pays 0.8 of the price because he gets an employee discount. Tikik has a coupon for $5 off. Explain who pays less for the backpack.

18. Coffee is sold in 1.25-pound bags. If a store sells 25 bags each day, how many pounds of coffee do they sell in a week?

_____ pounds

19. For 19a–19d, select True or False for each statement.

19a. The product of 1.5 and 2.8 is 4.2. ○ True ○ False

19b. The product of 7.3 and 0.6 is 43.8. ○ True ○ False

19c. The product of 0.09 and 0.7 is 6.3. ○ True ○ False

19d. The product of 0.79 and 1.5 is 1.185. ○ True ○ False

20. Merrik earned $36.24 last weekend. Chaela earned $7.99 more than Merrik. Brooklyn earned twice as much as Chaela. How much did Brooklyn earn?

Part A

Draw a diagram to show how much each person earned.

Part B

How much did Brooklyn earn?